ELKINS ON PRIEST LAKE (PWSNO 1090040)
SOURCE WATER ASSESSMENT REPORT

September 17, 2002

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR ELKINS ON PRIEST LAKE

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Elkins on Priest Lake, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Elkins on Priest Lake* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Elkins on Priest Lake is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. A flowing artesian well fed from the surrounding uplands in the Reeder Creek drainage provides water for Elkins on Priest Lake. The water system serves two homes, a restaurant and 26 cabins. The resort relied on lake water before the well was drilled in 1994. Work on the well started in June. The original casing pierced a confining layer of heavy clay and gravel, which extends only 10 feet below the surface, and continued to a depth of 65 feet. Unexpectedly high artesian pressure pushed water to the surface outside the casing. The casing was pulled and five yards of concrete were used to check the flow. Reopened in September 1994 with a 6-inch casing extending from 3 feet above ground to a depth of 28 feet, and sealed to a depth of 18 feet with concrete and bentonite clay, the well produces an estimated 30 gpm.

Elkins was mostly in compliance with *Idaho Rules for Public Drinking Water Systems* when inspected during a sanitary survey in June 2001. Fill around the well head and reservoir access was too deep. The minimum clearance is 12 inches. Pump to waste appurtenances and a smooth sampling tap were needed on the well discharge line.

Well Site Characteristics. Soils in the well recharge zone are generally well drained. A thin confining layer of clay and gravel lies over water producing gravels and sand. Well-drained soils provide little protection against migration of contaminants toward the well.

Potential Contaminant Inventory. Land use inside the protection zone delineated for the Elkins well is recreational. Potential contaminant sources inside the delineation boundaries include the septic system for the resort above ground fuel storage, and surface waters of Reeder Creek and Priest Lake.

Surface waters were discounted as a potential contaminant source in the analysis for Elkins. As a flowing artesian well it is not susceptible to local surface water influence.

Table 1. Elkins on Priest Lake Potential Contaminant Inventory

Map ID	Site Description	Potential Contaminants*	Source of Information
1	Fuel Storage Tank	SOC, VOC	Above Ground Storage Tank Database
2	Resort Septic System	IOC, Microbial	Public Water System File
	Reeder Creek, Priest Lake	Microbial	Geological Survey Maps

*SOC = Synthetic Organic Chemicals. VOC =Volatile Organic Chemicals. IOC = Inorganic Chemicals.

Water Quality History. Elkins on Priest Lake has had few water quality problems. The presence of total coliform bacteria in distribution system samples tested in October 1999 and December 2001 was not confirmed in subsequent testing. Concentrations of nitrate detected in annual testing, 0.012 to 0.05 mg/l, have been insignificant.

Susceptibility to Contamination. An analysis of the Elkins well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants. Most of the points marked against the well are due to natural risk factors related to local geology. The complete analysis worksheet for your well is on page 6 this report. Formulas used to compute the final susceptibility scores are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

The Elkins resort well has a good water quality history. Continuing to maintain and operate the system in compliance with *Idaho Rules for Public Drinking Water Systems* is the best drinking water protection for the resort.

A voluntary measure every system should employ is development of an emergency response plan. There is a simple, fill-in-the-blanks form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

The resort should also investigate ground water protection programs like Home*A*Syst. Home*A*Syst is designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities.

Because Elkins may not have direct jurisdiction over the entire recharge zone for its well, it will be important to form partnerships with neighboring landowners, and public agencies to regulate land uses that can degrade ground water quality. A hydrogeologic study of the well concluded that it is fed from surrounding highlands in the Reeder Creek drainage, so protection efforts should focus on the areas inside the delineation boundaries that are at a higher elevation than the well. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho.

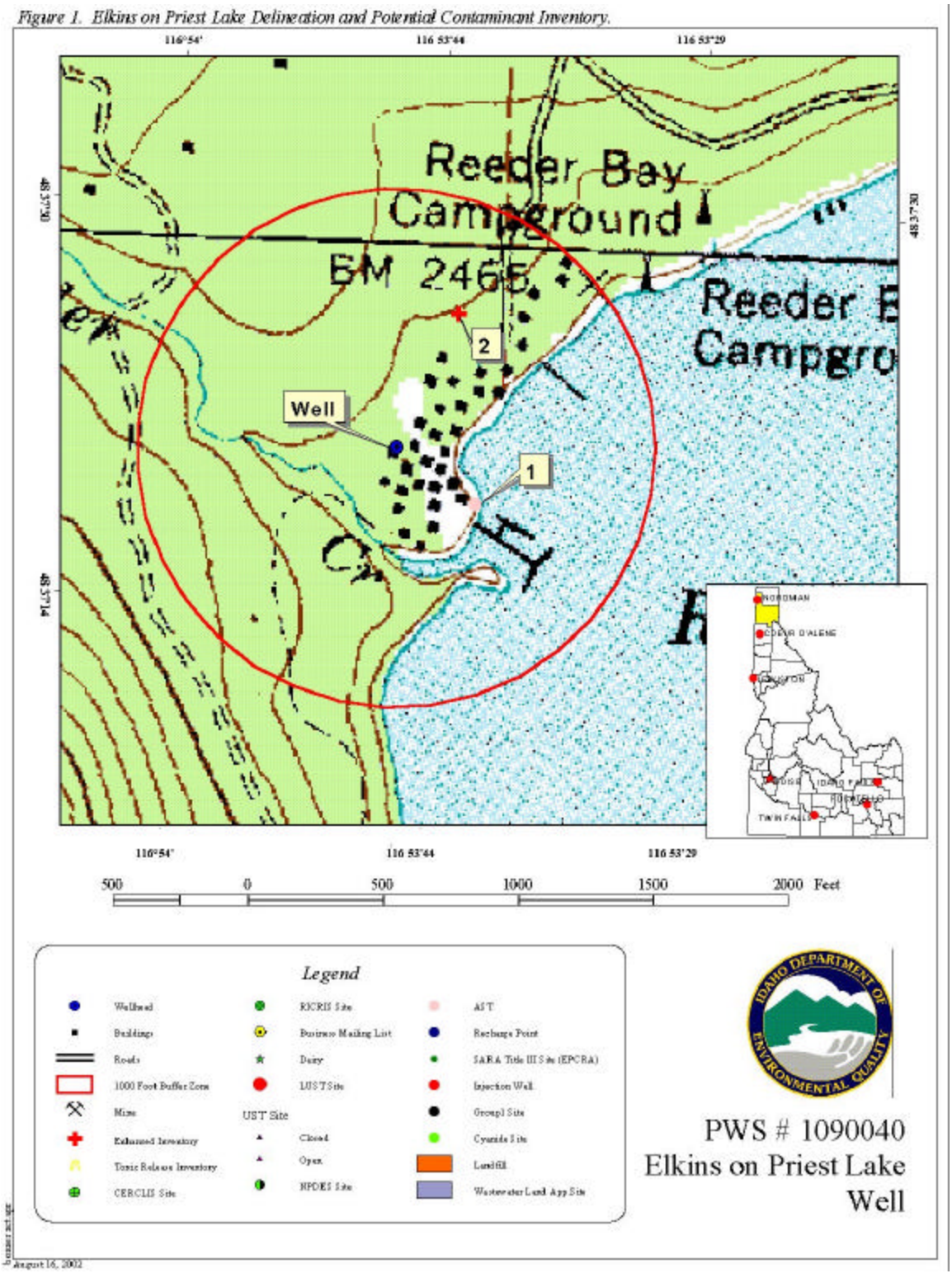
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Figure 1. Elkins on Priest Lake Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name : **ELKINS ON PRIEST LAKE** Well # : **WELL**

Public Water System Number : **1090040** 8/16/02 7:56:49 AM

1. System Construction			SCORE			
Drill Date	9/28/94					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	2001				
Well meets IDWR construction standards	YES		0			
Wellhead and surface seal maintained	YES		0			
Casing and annular seal extend to low permeability unit	YES		0			
Highest production 100 feet below static water level	NO		1			
Well located outside the 100 year flood plain	YES		0			
Total System Construction Score			**1**			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO		2			
Vadose zone composed of gravel, fractured rock or unknown	NO		0			
Depth to first water > 300 feet	NO		1			
Aquitard present with > 50 feet cumulative thickness	NO		2			
Total Hydrologic Score			**5**			
			IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A			Score	Score	Score	Score
Land Use Zone 1A	RECREATION AREA		1	1	1	1
Farm chemical use high	NO		0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO		NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			**1**	**1**	**1**	**1**
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	Above Ground Fuel Storage, Resort Septic System		1	1	1	1
(Score = # Sources X 2) 8 Points Maximum			2	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES		1	1	1	
4 Points Maximum			1	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO		0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land		0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B			**3**	**3**	**3**	**2**
Cumulative Potential Contaminant / Land Use Score			**4**	**4**	**4**	**3**
4. Final Susceptibility Source Score			**7**	**7**	**7**	**7**
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
> 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.